

### **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of the claims in the application:

Claim 1 (withdrawn): A transgenic plant cell transformed by an OBP coding nucleic acid expression vector, wherein expression of said vector in the plant cell results in an alteration in the size of the resulting aerial portion of the plant without dwarfing root tissue as compared to a corresponding wild-type variety of plant.

Claim 2 (withdrawn): A transgenic plant cell of claim 1, wherein the over-expression of said vector in the plant cell results in a decrease in the size of the resulting plant as compared to a corresponding wild-type variety of plant.

Claim 3 (withdrawn): The transgenic plant cell of claim 2, wherein the OBP is *Arabidopsis thaliana* OBP3 and orthologs thereof.

Claim 4 (withdrawn): The transgenic plant cell of claim 3, wherein the *Arabidopsis thaliana* OBP3 is SEQ ID NO: 1.

Claim 5 (withdrawn): The transgenic plant cell of claim 4, wherein the OBP3 coding nucleic acid hybridizes under stringent conditions to the sequence as defined in SEQ ID NO: 1.

Claim 6 (withdrawn): The transgenic plant cell of claim 2, wherein the resulting plant is a monocot.

Claim 7 (withdrawn): The transgenic plant cell of claim 2, wherein the resulting plant is a dicot.

Claim 8 (withdrawn): The transgenic plant cell of claim 2, wherein the resulting plant is selected from the group consisting of maize, wheat, rye, oat, triticale, rice, barley, soybean, peanut, cotton, rapeseed, canola, manihot, pepper, sunflower, tagetes, solanaceous plants, potato, tobacco, eggplant, tomato, Vicia species, pea, alfalfa, coffee, cacao, tea, Salix species, oil palm, coconut, perennial grass, and forage crops.

Claim 9 (withdrawn): A transgenic plant comprising a plant cell according to claim 4.

Claim 10 (withdrawn): A seed produced by a transgenic plant comprising a plant cell according to claim 4, wherein the seed is true breeding for a decrease in the size of a daughter plant as compared to the corresponding wild-type variety of plant.

Claim 11 (withdrawn): An agricultural product produced by the transgenic plant of claim 9.

Claim 12 (withdrawn): An agricultural product produced by the transgenic seed of claim 10.

Claim 13 (currently amended): A transgenic plant cell transformed by an OBP antisense coding nucleic acid expression vector, wherein expression of said vector in the plant cell results in an increase in the size of the resulting plant as compared to a corresponding wild-type variety of plant, and wherein the OBP is a nucleotide sequence selected from the group consisting of:

- (a) the nucleotide sequence shown in SEQ ID NO:1, or the complement thereof;
- (b) a nucleotide sequence that hybridizes to said nucleotide sequence of (a) under a wash stringency equivalent to 0.1X SSC, 0.1% SDS, at 50°C, and which encodes a polypeptide having activity differing from that of SEQ ID NO: 1 by about 40% or less;

- (c) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (a), but which is degenerate in accordance with the degeneracy of the genetic code; and
- (d) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (b), but which is degenerate in accordance with the degeneracy of the genetic code.

Claim 14 (canceled).

Claim 15 (currently amended): The transgenic plant cell of claim [[14]] 13, wherein the [[OBP3]] OBP is SEQ ID NO: 1

Claim 16 (currently amended): The transgenic plant cell of claim [[15]] 13, wherein the [[OBP3]] OBP coding nucleic acid hybridizes under ~~stringent conditions~~ a wash stringency equivalent to 0.2X SSC, 0.1% SDS at 50°C to SEQ ID NO: 1.

Claim 17 (original): The transgenic plant cell of claim 13, wherein the resulting plant is a monocot.

Claim 18 (original): The transgenic plant cell of claim 13, wherein the resulting plant is a dicot.

Claim 19 (original): The transgenic plant cell of claim 13, wherein the resulting plant is selected from the group consisting of maize, wheat, rye, oat, triticale, rice, barley, soybean, peanut, cotton, rapeseed, canola, manihot, pepper, sunflower, tagetes, solanaceous plants, potato, tobacco, eggplant, tomato, Vicia species, pea, alfalfa, coffee, cacao, tea, Salix species, oil palm, coconut, perennial grass, and forage crops.

Claim 20 (original): A transgenic plant comprising a plant cell according to ~~any one of~~ claim 16.

Claim 21 (original): A seed produced by a transgenic plant comprising a plant cell according to claim 16, wherein the seed is true breeding for an increase in the size of a daughter plant as compared to a wild-type variety of plant cell.

Claim 22 (withdrawn): An agricultural product produced by the transgenic plant of claim 20.

Claim 23 (withdrawn): An agricultural product produced by the transgenic seed of claim 21.

Claim 24 (withdrawn): An isolated OBP3 coding nucleic acid comprising SEQ ID NO: 1.

Claim 25 (withdrawn): An isolated OBP3 coding nucleic acid comprising a nucleic acid having at least 60% sequence identity to SEQ ID NO: 1.

Claim 26 (withdrawn): An isolated OBP3 coding nucleic acid comprising a nucleic acid having at least 60% sequence identity to SEQ ID NO: 12.

Claim 27 (withdrawn): An isolated OBP3 coding nucleic acid comprising a nucleic acid having at least 60% sequence identity to SEQ ID NO: 13.

Claim 28 (withdrawn): An isolated OBP3 coding nucleic acid comprising a nucleic acid having at least 60% sequence identity to SEQ ID NO: 14.

Claim 29 (withdrawn): An isolated OBP3 coding nucleic acid comprising a nucleic acid having at least 60% sequence identity to SEQ ID NO: 15.

Claim 30 (withdrawn): A recombinant expression vector comprising any one of the nucleic acids as set forth in claim 24.

Claim 31 (currently amended): A recombinant antisense expression vector comprising:

- (a) a promoter, said promoter being functional in a plant cell; and
- (b) an Arabidopsis thaliana OBP3 antisense coding nucleic acid, said promoter being operably linked to said OBP3 antisense coding nucleic acid and said antisense coding nucleic acid oriented with respect to said promoter such that the RNA produced is complementary in nucleotide sequence and capable of hybridizing under a wash stringency equivalent to 0.2X SSC, 0.1% SDS at 50°C in a stringent manner to mRNA encoding Arabidopsis thaliana OBP3, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence ~~of at least 15 contiguous nucleotides of~~ having at least 70% homology to SEQ ID NO: 1 and encoding conservative amino acids substitutions.

Claim 32 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 12.

Claim 33 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 13.

Claim 34 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 14.

Claim 35 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 15.

Claim 36 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 16.

Claim 37 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 17.

Claim 38 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 18.

Claim 39 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 19.

Claim 40 (withdrawn): The recombinant antisense expression vector of claim 31, wherein said OBP3 antisense coding nucleic acid comprises a nucleotide sequence of at least 15 contiguous nucleotides of SEQ ID NO: 20.

Claim 41 (withdrawn): A method for producing a transgenic plant having altered size of the aerial portion of the plant without dwarfing root tissue as compared to the corresponding wild-type plant, said method comprising:

- (a) transforming plant cells by introducing a nucleic acid vector encoding *Arabidopsis thaliana* OBP3;

- (b) producing plants from said transformed plant cells and
- (c) selecting a whole plant exhibiting altered size.

Claim 42 (withdrawn): A method for producing a transgenic plant having decreased size of the aerial portion of the plant without dwarfing root tissue as compared to the corresponding wild-type plant, said method comprising:

- (a) transforming plant cells by introducing the nucleic acid vector as set forth in claim 30;
- (b) producing plants from said transformed plant cells and
- (c) selecting a whole plant exhibiting decreased size.

Claim 43 (original): A method for producing a transgenic plant having increased size as compared to the corresponding wild-type plant, said method comprising:

- (a) transforming plant cells by introducing any one of the recombinant antisense expression vectors as set forth in claim 31;
- (b) producing plants from said transformed cells and
- (c) selecting a whole plant exhibiting increased size.

Claim 44 (withdrawn): A method for altering the size of the aerial portion of a plant without dwarfing root tissue, said method comprising:

- (a) introducing a nucleic acid vector encoding *Arabidopsis thaliana* OBP3 into a plant cell;
- (b) regenerating the plant cell into a transgenic plant;
- (c) evaluating the change in size by comparing the whole plant obtained by introducing the nucleic acid molecule with the size of a corresponding wild-type plant.

Claim 45 (withdrawn): A method for altering the size of the aerial portion of a plant without dwarfing root tissue, said method comprising:

- (a) introducing any one of the recombinant expression vectors as set forth in claim 30 into a plant cell;
- (b) regenerating the plant cell into a transgenic plant;
- (c) evaluating the whole plant for a decrease in size by comparing the plant obtained by introducing the nucleic acid molecule with the size of a corresponding wild-type plant.

Claim 46 (original): A method for altering the size of the aerial portion of a plant without dwarfing root tissue, said method comprising:

- (a) introducing any one of the recombinant antisense expression vectors as set forth in claim 31 into a plant cell;
- (b) regenerating the plant cell into a transgenic plant;
- (c) evaluating the whole plant for an increase in size by comparing the plant obtained by introducing the nucleic acid molecule with the size of a corresponding wild-type plant.

Claim 47 (withdrawn): A transgenic plant produced by the methods of claim 42.

Claim 48 (withdrawn): A method according to claim 42, wherein the plant is a monocot.

Claim 49 (withdrawn): A method according to claim 42, wherein the plant is a dicot.

Claim 50 (withdrawn): A method according to claim 42, wherein the plant is selected from the group consisting of maize, wheat, rye, oat, triticale, rice, barley, soybean, peanut, cotton, rapeseed, canola, manihot, pepper, sunflower, tagetes, solanaceous plants, potato, tobacco, eggplant, tomato, Vicia species, pea, alfalfa, coffee, cacao, tea, Salix species, oil palm, coconut, perennial grass, and forage crops.



Claim 51 (withdrawn): The method of claim 42, wherein the transgenic plant exhibits dwarfism in the aerial tissue as compared to the corresponding wild-type plant.

Claim 52 (withdrawn): The method of claim 42, wherein the transgenic plant exhibits longer, more robust root growth as compared to the corresponding wild-type plant.

Claim 53 (original): The method of claim 43, wherein the transgenic plant exhibits increased aerial tissue growth as compared to the corresponding wild-type plant.

Claim 54 (withdrawn): The method of claim 41, wherein the vector is introduced into plant cells by a method selected from the group consisting of electroporation, microinjection, protoplast transformation, microprojectile bombardment, liposomal encapsulation, and Agrobacterium-mediated transformation.

Claim 55 (withdrawn): A transgenic plant cell transformed by a nucleic acid sequence encoding an OBP3 polypeptide, wherein expression of said polypeptide in the plant cell results in an alteration in the size of the resulting aerial portion of a plant generated from the cell without dwarfing root tissue as compared to a corresponding wild-type variety of plant.

Claim 56 (withdrawn): The transgenic plant cell of claim 55, wherein said polypeptide is over-expressed resulting in a decrease in the size of the resulting aerial portion of the plant as compared to a corresponding wild-type variety of plant.

Claim 57 (withdrawn): The transgenic plant cell of any one of claims 55, wherein the OBP3 is *Arabidopsis thaliana* OBP3 and orthologs thereof.

Claim 58 (withdrawn): The transgenic plant cell of claim 56, wherein the nucleic acid sequence encoding the polypeptide is selected from the group consisting of:

- (a) the nucleotide sequence shown in SEQ ID NO:1, or the complement thereof;
- (b) a nucleotide sequence that hybridizes to said nucleotide sequence of (a) under a wash stringency equivalent to 0.1X SSC to 2.0X SSC, 0.1% SDS, at 50-65 C, and which encodes a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 40% or less;
- (c) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (a), but which is degenerate in accordance with the degeneracy of the genetic code; and
- (d) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (b), but which is degenerate in accordance with the degeneracy of the genetic code.

Claim 59 (withdrawn): The transgenic plant or plant part of claim 58, wherein the nucleotide sequence in (b) encodes a polypeptide selected from the group consisting of:

- (a) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 30% or less;
- (b) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 20% or less;
- (c) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 10% or less.

Claim 60 (withdrawn): The transgenic plant cell of claim 58, wherein the resulting plant is a monocot or a dicot.

Claim 61 (withdrawn): The transgenic plant cell of claim 58, wherein the resulting plant is selected from the group consisting of maize, wheat, rye, oat, triticale, rice, barley, soybean, peanut, cotton, rapeseed, canola, manihot, pepper, sunflower, tagetes,

solanaceous plants, potato, tobacco, eggplant, tomato, Vicia species, pea, alfalfa, coffee, cacao, tea, Salix species, oil palm, coconut, perennial grass, and forage crops.

Claim 62 (withdrawn): A transgenic plant comprising a plant cell according to claim 58.

Claim 63 (withdrawn): A seed produced by a transgenic plant comprising a plant cell according to claim 62.

Claim 64 (withdrawn): An agricultural product produced by the transgenic plant of claim 62.

Claim 65 (withdrawn): An agricultural product produced by the transgenic seed of claim 63.

Claim 66 (canceled).

Claim 67 (original): The transgenic plant cell of claim 66, wherein the OBP is Arabidopsis thaliana OBP3 and orthologs thereof.

Claim 68 (original): A transgenic plant cell transformed by an antisense nucleic acid sequence complementary to a nucleic acid sequence encoding an OBP3 polypeptide, wherein expression of said antisense nucleic acid sequence in the plant cell results in an increase in the size of a resulting plant as compared to a corresponding wild-type variety of plant, and ~~The transgenic plant cell of claim 66,~~ wherein the nucleic acid sequence encoding the polypeptide is selected from the group consisting of:

- (a) the nucleotide sequence shown in SEQ ID NO:1, or the complement thereof;
- (b) a nucleotide sequence that hybridizes to said nucleotide sequence of (a) under a wash stringency equivalent to 0.1X SSC to 2.0X SSC, 0.1% SDS,

at 50-65 C, and which encodes a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 40% or less;

- (c) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (a), but which is degenerate in accordance with the degeneracy of the genetic code; and
- (d) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (b), but which is degenerate in accordance with the degeneracy of the genetic code.

Claim 69 (currently amended): The transgenic plant ~~or plant part~~ cell of claim ~~[[66]]~~ 68, wherein the nucleotide sequence in (b) encodes a polypeptide selected from the group consisting of:

- (a) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 30% or less;
- (b) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 20% or less;
- (c) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 10% or less.

Claim 70 (original): A transgenic plant comprising a plant cell according to claim 68.

Claim 71 (original): A seed produced by a transgenic plant comprising a plant cell according to claim 70.

Claim 72 (withdrawn): An agricultural product produced by the transgenic plant of claim 70.

Claim 73 (withdrawn): An agricultural product produced by the transgenic seed of claim 71.

Claim 74 (currently amended): A recombinant antisense expression vector comprising:

- a) a promoter, said promoter being functional in a plant cell; and
- (b) an antisense coding nucleic acid sequence complementary to a nucleic acid sequence encoding an OPB3 polypeptide, wherein said antisense nucleic acid sequence is operably linked to said promoter and is oriented with respect to said promoter such that RNA produced by said antisense coding nucleic acid sequence is complementary to and capable of hybridizing under a wash stringency equivalent to 0.2X SSC, 0.1% SDS at 50°C ~~in a stringent manner~~ to mRNA encoding OPB3, wherein said OPB3 antisense coding nucleic acid comprises a nucleotide sequence ~~of at least 15 contiguous nucleotides~~ having at least 70% homology to a nucleotide sequence complementary to SEQ ID NO:1 and encoding conservative amino acids substitutions.

Claim 75 (withdrawn): The recombinant antisense expression vector of claim 74, wherein said antisense coding nucleic acid sequence comprises a nucleotide sequence of at least 15 contiguous nucleotides complementary a nucleotide sequence selected from the group consisting of SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, and SEQ ID NO:20.

Claim 76 (original): The recombinant vector of claim 74, wherein said nucleic acid sequence encoding an OBP3 polypeptide is selected from the group consisting of:

- (a) the nucleotide sequence shown in SEQ ID NO:1, or the complement thereof;
- (b) a nucleotide sequence that hybridizes to said nucleotide sequence of (a) under a wash stringency equivalent to 0.1X SSC to 2.0X SSC, 0.1% SDS,

at 50-65 C, and which encodes a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 40% or less;

- (c) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (a), but which is degenerate in accordance with the degeneracy of the genetic code; and
- (d) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (b), but which is degenerate in accordance with the degeneracy of the genetic code.

Claim 77 (original): The recombinant vector of claim 76, wherein the promoter is an inducible promoter.

Claim 78 (original): The recombinant vector of claim 77, further comprising an enhancer element.

Claim 79 (original): The recombinant vector of claim 78, wherein the enhancer element is from a CaMV35S promoter.

Claim 80 (withdrawn): A method of producing a transgenic plant or plant part having an altered aerial portion of the plant without having dwarfed root tissue as compared to a wild type plant, the method comprising:

- (a) transforming plant cells with a nucleic acid sequence encoding a polypeptide, said nucleic acid sequence selected from the group consisting of:
  - (i) the nucleotide sequence shown in SEQ ID NO:1, or the complement thereof;
  - (ii) a nucleotide sequence that hybridizes to said nucleotide sequence of (i) under a wash stringency equivalent to 0.1X SSC to 2.0X SSC, 0.1% SDS, at 50-65 C, and which encodes a polypeptide having

- activity differing from that of *Arabidopsis thaliana* OBP3 by about 40% or less;
- (iii) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (i), but which is degenerate in accordance with the degeneracy of the genetic code; and
  - (iv) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (ii), but which is degenerate in accordance with the degeneracy of the genetic code.
- (b) producing plants from said transformed plant cells.

Claim 81 (withdrawn): A transgenic plant produced by the method of claim 80.

Claim 82 (withdrawn): The method of claim 80, wherein the transgenic plant exhibits dwarfism in the aerial tissue as compared to a corresponding wild-type plant.

Claim 83 (withdrawn): The method of claim 80, wherein the transgenic plant exhibits increased aerial tissue growth as compared to a corresponding wild-type plant.

Claim 84 (withdrawn): The method of claim 80, wherein the nucleic acid sequence encoding a polypeptide is introduced into plant cells by a method selected from the group consisting of electroporation, microinjection, protoplast transformation, microprojectile bombardment, liposomal encapsulation, and *Agrobacterium*-mediated transformation.

Claim 85 (withdrawn): The method of claim 80, wherein the nucleic acid sequence encoding a polypeptide is contained in a nucleic acid vector.

Claim 86 (withdrawn): The method of claim 80, wherein the nucleotide sequence in (ii) encodes a polypeptide selected from the group consisting of:

- (a) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 30% or less;
- (b) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 20% or less;
- (c) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 10% or less.

Claim 87 (withdrawn): A vector comprising a nucleic acid sequence, wherein the nucleic acid sequence encodes an OBP3 polypeptide, said nucleic acid sequence being selected from the group consisting of:

- (a) the nucleotide sequence shown in SEQ ID NO:1, or the complement thereof;
- (b) a nucleotide sequence that hybridizes to said nucleotide sequence of (a) under a wash stringency equivalent to 0.1X SSC to 2.0X SSC, 0.1% SDS, at 50-65 C, and which encodes a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 40% or less;
- (c) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (a), but which is degenerate in accordance with the degeneracy of the genetic code; and
- (d) a nucleotide sequence encoding the same amino acid sequence as said nucleotide sequence of (b), but which is degenerate in accordance with the degeneracy of the genetic code.

Claim 88 (withdrawn): The vector of claim 87, wherein the nucleotide sequence in (b) encodes a polypeptide selected from the group consisting of:

- (a) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 30% or less;



- (b) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 20% or less;
- (c) a polypeptide having activity differing from that of *Arabidopsis thaliana* OBP3 by about 10% or less.